ABSTRACT OF THE DISCLOSURE

Disclosed is a high frequency optical pulse source generating stable optical pulses over a wide current range in an optical transmission system to enhance stability and reliability, the high frequency optical pulse source implementing, in one chip, a multi- section distributed feedback (DFB) laser diode with a phase control section arranged between two DFB laser diodes. By controlling the current applied to the electrode of the phase control section while applying currents to the first and second DFB sections, the present invention causes self-mode locking between the compound-cavity modes having similar threshold currents, thereby generating stable tens GHz-level optical pulses. Hence, the present invention generates optical pulses uniformly over a wide current range, thereby enhancing the stability and reliability of the element.